

What I claim is:

- 5 1. Loudspeaker element of ribbon type having an elongated corrugated ribbon membrane made from metal, at both ends attached in an oscillation plane to a holder and connectable to an electric power source, and whose part intermediate said attached ends can oscillate freely in a magnetic gap of permanent type, the magnetic field of which is directed across the elongated ribbon membrane and along its width-direction, said magnetic gap being a part of a magnetic circuit having two permanently magnetized main magnets arranged on opposite sides of the said magnetic gap and attached to the holder, and wherein two soft iron pole pieces (**A1** and **A2** in **Fig.3** and in **Fig.7**) are arranged in the same plane on both outer elongated sides of the main magnets (**C1** and **C2**) and also that a flow-related centerline of the magnets is located in said oscillation plane which also constitutes the membrane's physical rest position (**Fig.4**; **Fig.8**).
- 10 2. Loudspeaker element according to claim 1, distinguished by two booster-magnets (**B1**; **B2** in **Fig.3** and **Fig.7**) being mounted in a holder outside the magnetic gap and in its prolongation and also perpendicularly relative to the main magnets and as to polarization being magnetized in series with the pole pieces and the main magnets (**C1**) and (**C2**) in order to reinforce the magnetic field in the magnet gap and in order to compensate for magnetic flow-losses in the soft iron pole pieces and also in order to linearize the field at the ends of the main magnets.
- 15 3. Loudspeaker element according to claim 1, distinguished by the ribbon's total radiating length being selectable between 50 millimeters and 2500 millimeters for one module.
- 20 4. Loudspeaker element according to claim 1, distinguished by the magnet systems having the same height as the pole pieces and being made from Neodym 35 or from a ferromagnetic alloy of higher quality.

5. Loudspeaker element according to claim 1, distinguished by the slit width in the magnetic gap being 50 millimeters in the basic design.

5 6. Loudspeaker element according to claim 1, distinguished by a modular construction where the slit gap is reducible and where the magnetic flow is concentrated by implementation of the soft iron pole pieces (**D1**) and (**D2**).

10 7. Loudspeaker element according to claim 1, distinguished by the fact that the magnetic gap is modifyable in order to replace a wide membrane by a narrower one, which is optimized for reproduction of high frequencies.

15 8. Loudspeaker element according to claim 7, distinguished by the fact that the narrow ribbon membrane is slotted according to (**Fig.6**) along the part of the ribbon within the magnetic gap in order to suppress the influence of non-linear flow in the magnetic gap.

20 9. Loudspeaker system, distinguished by a combination of different loudspeaker elements where loudspeaker elements with narrow membranes are connected to a filter circuit according to (**Fig.2A**) and other loudspeaker elements with wide ribbons are connected to a filter circuit according to (**Fig.2B**), where the resistors (**B**) in both cases are low inductive high power resistors, mounted in such a way that the module act as a heat sink, with a value for the resistor (**B**) resulting in the ribbon getting current-fed, in which case the problems with inductive influence 25 below the 1/f point are eliminated.

30 10. Loudspeaker system according to claim 9, distinguished by the fact that loudspeaker elements with narrow membranes are connected to a filter circuit according to (**Fig2A**) and loudspeaker elements with wide ribbons are connected to a filter circuit according to (**Fig.2B**) where the resistors (**D**) in both cases consist of a low inductive high power resistor, mounted in such a way that the module acts as

a heat sink and where the capacitor (**C**) has a value resulting in the ribbon being compensation-fed above the 1/f point in order to obtain a flat frequency response according to (Fig.1E).

- 5 11. Loudspeaker module which has an elongated, uniform-width, corrugated and electrically conductive, essentially non-ferromagnetic ribbon, at both ends electrically connected in an isolated manner, free to oscillate in an elongated opening in a substantially plane frame, the ends of said ribbon having means for connection to an electric sound signal source, an elongated permanent magnetic gap in the frame forming the said elongated slot, said magnetic gap showing different magnetic polarities opposite to and adjacent to the ribbon membrane's both side edges, and magnetic means in the frame for creating a magnetic return circuit, said means located outside of and liberating said opening, the said ribbon at least as to that part falling within said opening having a slit arranged in the middle of the ribbon, said slit being directed along the longitudinal direction of the ribbon.

10
SEPTEMBER
15
2002